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Challenges and Opportunities for Humanitarian Relief in Afghanistan

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Afghanistan is in the midst of a profound humanitarian crisis resulting primarily from long-standing armed conflict, a devastating drought, and massive population migration. The economy, government, and health care system are in shambles. Currently, as many as 5 million Afghans are in camps either as refugees in neighboring countries or as internally displaced persons within Afghanistan. Much of the rest of the population is in dire need of basic essentials such as food, water, shelter, and basic medical care. Those attempting to carry out humanitarian relief face many daunting challenges, such as reaching remote locations, coping with a dangerous security situation, and working with limited resources. However, there are opportunities in the short run to save many lives and substantially improve the plight of Afghans by carrying out appropriate and effective emergency relief programs. Over the long term, effective medical and public health relief efforts will be an essential part of rehabilitating and rebuilding this devastated country.

The Islamic State of Afghanistan (Afghanistan) has endured >23 years of devastating armed conflict, social upheaval, and major food shortages, leaving the country in the midst of an overwhelming humanitarian crisis. The entire population has been profoundly affected by ongoing armed conflict. As with other complex emergencies of the last decade, Afghanistan's internal conflict has led to the massive migration of as much as one-third of the population as refugees or internally displaced persons (IDPs). Violence, destruction, unrest, and large-scale population migration have had severe consequences for the government, economy, society, culture, and health of the Afghan people. In addition,

Afghanistan has experienced 3 years of severe drought, which has magnified and exacerbated the crisis. Recent military intervention by the United States and Great Britain in the war on terrorism is being accompanied by emergency relief and development efforts. It is hoped that this heralds an opportunity for Afghanistan to begin the long process toward ending armed conflict, repatriating the displaced populations, and reconstructing society. Here we review Afghanistan's current circumstances from the particular perspective of health and provide a basic framework for those attempting to address humanitarian medical relief.

BACKGROUND

Afghanistan has always been a remote, harsh, undeveloped, and poor nation. Certain aspects of its geography, climate, people, economy, history of conflict, education, and health conditions are essential for understanding the country and its current humanitarian crisis [1–4]. In addition, this information is essential to a better understanding of Afghanistan's unique challenges and opportunities for an effective and efficient

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humanitarian response, in both the short and long term.

Geography and climate. Afghanistan is about the size of the state of Texas and is land-locked and remote, located in central Asia between the Indian subcontinent and the Middle East. Its territory includes part of the formidable peaks of the Hindu Kush, the second-highest mountain range in the world, with peaks as high as 6100 m. Despite its isolation among rugged mountains and large areas of remote arid desert plains in the north and southwest, Afghanistan has nevertheless been an important crossroads and central location in trade and migration for centuries. In 1998, the area's system of roads and railroads consisted of only 25.5 km of railways and 2896 km of paved roads. Most of this infrastructure is in disrepair today; however, a plethora of unpaved roads and heavily traveled trade routes, some through high mountain passes such as the historic Khyber Pass, allow substantial migration and trade to occur, if only by foot or on horse, mule, or camel.

The often harsh climate varies, depending on location. With an arid to semiarid climate, the weather is generally characterized by sharp contrasts in temperature by day, season, and elevation, with temperature swings as much as 22°C within 24 h. Winters in the mountains can be particularly extreme, with much snow and freezing temperatures, whereas summers in the desert are typically very hot and dry. There are usually 2 wet seasons, with the main rains in the fall (October and November) or late winter and spring (December to May), during which many areas of the country become accessible only by foot. The country averages ~17.75–25.4 cm of rainfall per year, but some areas receive far less, and no area receives >38 cm. Although the mountain regions of the northeast have a subarctic climate with dry, cold winters, the mountainous areas on the border of Pakistan are influenced by the Indian monsoons, which usually come between July and September and bring maritime tropical air masses with humidity and rains.

The Afghan people talk with deep reverence, and hope, of the few rivers that originate from the central mountain core and flow outward across the country. The largest river, the Helmand, runs through Kandahar to the swamps of Sistan on the Iranian border. Only the Kabul River, which flows east to join the Indus River, reaches the sea. Other major rivers include the Hari Rud, which flows west past Herat, and the Kunduz, which flows north to join the Oxus (Amu Darya) and forms the northern border of the country. The rivers tend to run high in the spring with rain and snow runoff but otherwise have irregular and low flow.

As a result of the present drought, the worst in 30 years, many regular aquifers that supply ground wells have dried up, forcing the use of irrigation canals as the only source of water. Earthquakes and flooding are natural threats in the Hindu Kush. A large earthquake struck south of the capital, Kabul, in

February of 1999, resulting in an estimated 7000 deaths and destroying >50,000 homes [4].

People. The nation of Afghanistan was created in the late 1800s and gained independence from England in August 1919. Like many developing nations, it is to some extent an artificial creation. Millennia of migration and conquests, primarily by peoples from inner Asia, make the country a mosaic of ethnic, linguistic, and regional groups.

Almost the entire population of ~27 million persons are Muslim, with ~84% Sunnite and 15% Shi'a. A small population of Hindus and Sikhs have traditionally lived and traded in urban areas. The tribally organized Pashtun people (38%), concentrated in the east and south, are the dominant ethnic and linguistic group. The Tajiks (25%), mostly settled farmers, are the second-most-influential group. Other groups in various areas throughout the country include the Hazara (19%), Nuristanis, and Baluchs. Turkic people, such as the Uzbeks and Turkmen (6%), live primarily in the northern plains as farmers and herders. Many languages are spoken besides the official languages of Pushtu and Dari (Persian), including Arabic. Allegiances are complex: Tribal, religious, or local bonds often override any sense of national identity.

A definitive census has never been conducted; thus, highly accurate demographic data are nonexistent. Before the Soviet invasion in 1980, ~90% of the population was estimated to be living in rural settings, most as small farmers in the best-watered valleys. According to 2001 estimates, only 3% of the overall population of roughly 27 million (including refugees) are >65 years old, whereas 42% are ≤14 and 19% are <5. Forty-five percent of women are aged 15–49, with a fertility rate of 6.9 per woman. Almost no women use or have access to any form of contraception [5].

Economy. Historically, per capita yearly income is estimated to be between US\$200 and \$800, making Afghanistan one of the poorest and least developed countries in the world [2, 6]. The economy is currently in shambles. Conditions over the past 20 years have led to a progressive loss of labor and capital and an almost complete disruption of trade and transportation. Although the country is believed to have substantial mineral wealth (iron, chrome, copper), these resources remain untapped. There is little significant legitimate industry in the country. Most of the population (85%) is highly dependent on farming or herding. Throughout history, only 5% of the country along the main river valleys has supported 85% of the agriculture. The primary crops are wheat, fruits, and nuts (e.g., pistachios). Characteristically, most of the land has only a thin layer of topsoil that sustains little vegetation. Because of the prolonged drought and 23 years of constant warfare, extensive environmental degradation has taken place.

About 20% of the population is made up of traditional nomadic herders; livestock is able to endure by grazing on the

region's thin grasses. In an earlier time, small-scale local production of textiles, soap, furniture, shoes, and other basic products was in evidence, but because of food shortages and conflict, many in rural areas were forced to vacate to the cities or flee the country altogether. Herdsmen lost more than two-thirds of their sheep and goats, further threatening collapse of their way of life. About half of the irrigation systems were destroyed or abandoned, as were many orchards. Food crops either were not planted at all or now wither in the drought. Much of what little land is under cultivation today is used to grow opium poppies as a cash crop.

Modern infrastructure on which to rebuild the economy is scant [6], and there are no functioning banking or mail systems. Only 6% of Afghans have access to electricity. There are only 2 telephones per thousand people, and about half of those are in the city of Kabul. Gasoline can cost as much as US\$200 per gallon because it must be brought in from long distances. There are a few functioning television and radio stations and only 1 Internet service provider.

Importantly, Afghanistan has more land mines and unexploded ordinance than any other country in the world [7, 8]. This continues to have profound consequences on health, the economy, and ongoing livelihoods, especially for farmers and herdsmen [7, 8]. Land mines and ordinance are omnipresent, in some estimates covering more than half of the most valuable land, making many roads extremely hazardous and fields unusable. An estimated 200,000 disabled land mine survivors live in Afghanistan.

Partly as a result of the dire economic state, some Afghans have turned to trade in narcotics and precious stones, such as lapis, and the smuggling of weapons [6, 9]. Afghanistan has been by far the world's largest producer of opium, growing as much as 80% of the world's poppy plants. These shadow industries, supported and exploited by various warring factions, including, on occasion, the Taliban, are linked to the conflict and underlie the current—and in some ways remarkably sophisticated—"war economy." The Taliban regime attempted to outlaw and destroy almost all of the poppy crop; however, large stockpiles allegedly remain, and it is feared that there will be a post-Taliban resurgence of the highly profitable poppy farming.

Recent history of conflict. Afghanistan has had a long and complex series of armed conflicts, which reflects internal divisions and, to a large extent, its role as a strategic target and battleground for competing empires or superpowers. This is exemplified not only by the Cold War involvement of the United States and the Soviet Union during the 1980s and 1990s but also by the Afghan wars of the 19th century, in which Victorian England, Tsarist Russia, and various internal groups struggled for control in what was a part of what is often referred to as "The Great Game" [10]. Starting in the 1950s, Afghanistan

enjoyed a 30-year period of some prosperity, development, and modernization. This ended in December 1979, however, after an exacerbation of internal conflict. The Soviet Union invaded to establish and maintain a more friendly Marxist government. A bitter, destructive, and ultimately disastrous war ensued between the Soviet Union and the *mujahedin* (Islamic warriors), who were armed and supported primarily by the United States but also by Saudi Arabia and Pakistan. A number of militant fundamentalists came to Afghanistan to join the *mujahedin*. An estimated 1.5 million Afghans were killed during this crisis, and the country was physically decimated before the Soviets ultimately withdrew in 1989.

The war was disastrous for the Soviets as well. Soviet troops experienced serious casualties, from both battle and diseases, and were never able to achieve their military and political objectives. Of the 620,000 Soviets who served in Afghanistan, 2.33% (14,453) were killed or died from wounds, accidents, or disease. However, the rate of hospitalization was remarkable: The 469,685 personnel hospitalized represented 75.76% of those who served. Of these, 53,753 (11.44%) were wounded or injured, and 415,932 (88.6%) were hospitalized for serious illness. These illnesses included 115,308 cases of infectious hepatitis and 31,080 cases of typhoid fever. The remaining 233,554 cases included plague, malaria, cholera, diphtheria, meningitis, heart disease, shigellosis (infectious dysentery), amoebic dysentery, rheumatism, heat stroke, pneumonia, typhus, and paratyphus [11]. Many see this misadventure as a key in the subsequent collapse of the Soviet Union.

With the 1989 Soviet withdrawal, Western interest and support for the *mujahedin* ceased. Internal factions, who had aligned with each other against the Soviets, quickly splintered and fought for control of the country. The devastation that followed left many parts of every major city in rubble, particularly Kabul. Initially, *mujahedin* factions had the upper hand, gaining control of the country in 1992. Ironically, however, many Afghans whom the United States had trained, supported, and armed during their proxy war against the Soviets joined the extreme Taliban (translated as "students") movement, which ultimately took control of Kabul—and subsequently, most of the rest of the country—in 1996. The fierce internal fighting further decimated the country and its essential infrastructure. Kabul and other urban areas were shelled relentlessly, and most physical destruction actually occurred during this period of internal fighting.

Largely in response to corruption and abuses under the *mujahedin*, the Taliban imposed a harsh, regressive, and repressive regime aimed to establish a religious state based on Wahhabism, an extreme and fundamentalist interpretation of Islam. Although they had hoped to become a model for the rest of the Muslim world, the Taliban group became known for its particularly harsh oppression (and human rights abuses) of women

and its rigid laws and suppression of anything Western or modern. Women in particular had severe restrictions placed on their freedom of movement and access to health care, education, and employment [12–15]. Although the Taliban brought some measure of security to the country after years of conflict, they focused primarily on legal and moral matters, such as public executions of criminals, restricting women, outlawing music and other entertainment, and requiring men to wear beards. Under the Taliban, there was little to no active development of the economy and minimal attention to issues such as food shortages and lack of health services. Human rights groups reported widespread abuses [12, 13].

The Taliban regime ultimately controlled all of the country except for roughly 20% in the north, which was held by the Northern Alliance, a loose coalition of various groups opposed to the Taliban rule. Because of its extreme political views, plus a need for financial support, the Taliban sheltered and supported the al-Qaeda, an international terrorist group led by the now-infamous Osama bin Laden. Operatives of al-Qaeda were widely believed to have perpetrated the 11 September 2001 attacks on the US mainland, as well as previous terrorist attacks against US targets abroad, notably the embassies in Tanzania and Kenya and the USS Cole in Yemen.

In October 2001, the United States and its coalition, working in conjunction with the Northern Alliance, began its war on terrorism in a quest to destroy the al-Qaeda and depose its sponsors, the Taliban. As of this writing, a massive aerial bombing campaign, plus the advance of Northern Alliance forces, appear to have destroyed the Taliban regime and the al-Qaeda training camps within Afghanistan. With the aid of the United Nations, a new interim government has been identified and is attempting to assume control of the country, and a force of international peacekeepers is being deployed. However, in this latest governmental transition, a number of internal factions have reasserted themselves and taken control of some local areas. Some areas of the country are almost lawless. The success of the planned new government and international peacekeeping forces remains uncertain.

Education and health. Before this latest round of conflict, the education and health care systems were in exceptionally poor shape. The estimated illiteracy rate of the adult population is 64% and is substantially higher in women (78%) than men (48%) [16, 17]. Primary school enrollment is estimated to be only 39% for boys and 3% for girls. Secondary school enrollment is still lower [17, 18]. Even with the assistance of the international aid community, education has been available to only 7% of the 4.4 million children of primary school age. Only 5 universities and 4 medical schools have been built in Afghanistan, none of which has been functional in recent years. Although a number of humanitarian organizations have attempted to provide basic education, the Taliban banned many

books and allowed little education except conservative religious instruction.

Overall, in 2000, the Afghanistan health system ranked 173 out of 191 nations [19]. Every indicator of health status reveals a health care system in crisis [5, 17, 19]. The average life expectancy is estimated to be 45 years for men and 46 years for women, compared with 74.5 and 80 years, respectively, in the United States. Only 35% of the population has access to any health care. There are an estimated 11 physicians, 18 nurses, and 1 dentist per 100,000 population, compared with 279, 972, and 60, respectively, in the United States [5]. Over the course of the last 2 decades, most health care professionals, as well as most other educated Afghans, were killed or have fled the country. The Taliban attempted to purge all civil servants, including physicians, who had any link with the former government or who did not support their “Holy War,” thus further depleting the already decimated medical and professional classes [20]. It will take many years to reverse these shortages of trained medical personnel.

Virtually all medical care is supplied by international relief agencies. The health budget under the Taliban was judged to be ~US\$700,000 per year, or only a few cents per person, on average [21]. According to one analysis, the number of expected health facilities for a population of 25 million is 6522, including health posts, basic health centers, and district, provincial, regional, and national hospitals. However, the total number of health facilities in Afghanistan is currently 823. In 1996, 8 of 14 hospitals in Kabul were not functioning because of damaged infrastructure and a lack of critical supplies and staff [22]. The situation has since deteriorated. The few indigenous doctors remaining in Afghanistan are paid almost nothing (US\$4–\$6 per month) and have virtually no supplies. Sterile supplies are reused, and there is no running water [23]. With respect to the limited health services in Afghanistan, rural areas are particularly underserved compared with urban settings.

Afghanistan has an infant mortality rate of ~165 per 1000 live births and a maternal mortality rate of 1700 per 10,000 live births, both among the worst in the world. Only 8% of women receive prenatal care, and only 8% of births are attended by trained personnel. Three-fourths of the population have no access to obstetrical care, and there are <50% of the needed midwives and 30% of needed traditional birth attendants [5, 18]. Only 35% of the 330 districts have any maternal and child health clinics. For each maternal death in the United States, there are >5000 in Afghanistan, and the mortality rate for those <5 years old is reported to be 257 per 1000 live births. One-quarter of children do not reach their 5th birthday [5, 18].

The percentage of those with access to clean water is only 19% in urban areas and 11% in rural areas. Access to any form of sanitation shows similar statistics. Immunization coverage is generally low. Overall, only 35% of children have had measles

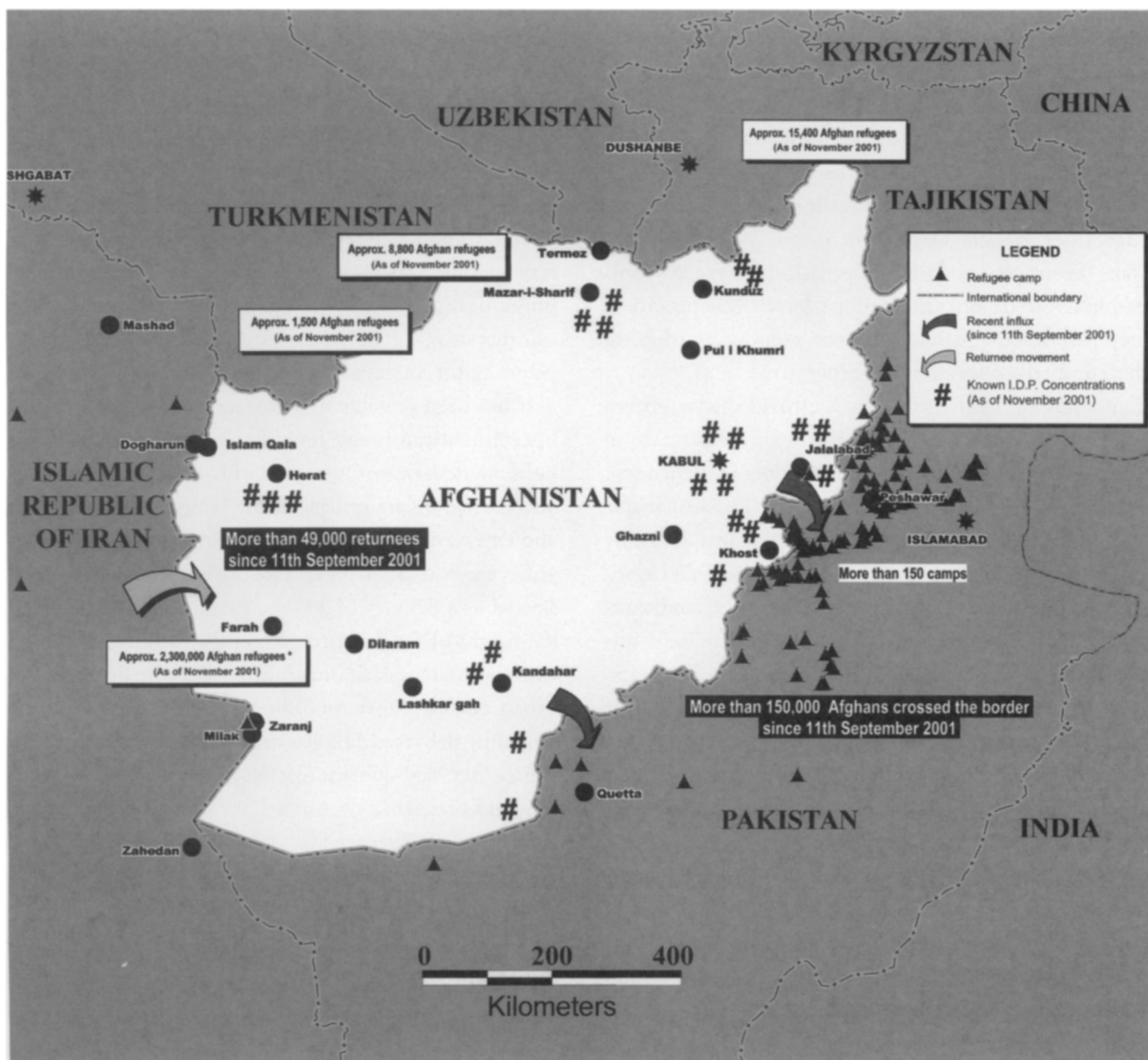


Figure 1. Refugees and internally displaced persons (IDPs) in and around Afghanistan

immunization, and 11% have had polio vaccine [5, 18]. An estimated 10% of children are acutely malnourished and 50% are chronically malnourished [5, 18].

THE CURRENT HUMANITARIAN SITUATION

Refugees and IDPs. According to the United Nations High Commissioner for Refugees (UNHCR), Afghanistan has had the largest number of refugees of any nation each year from 1980 to 2001. The ~4 million Afghans in exile is about one-third of the entire world's refugees, which makes it by far the world's largest single refugee population [24, 25]. There are also an estimated 800,000 IDPs, but this number could rise to >2 million because of further conflict and return of refugees [26]. Many of those displaced to urban areas are there because of drought and food shortages that preceded the current war.

Because of the ongoing conflict, exact data on the current number and location of refugees and IDPs is sparse. Furthermore, the situation is in flux. In the aftermath of the United States-led attack, most Afghan refugees were in Pakistan (2 million) and Iran (2.3 million) (figure 1) [25]. However, coalition-led attacks have spurred considerable new migration, this time with many moving away from the major cities to avoid bombing and some returning to areas no longer under the control of the Taliban. UNHCR estimates that >200,000 Afghans arrived in Pakistan soon after 11 September, and many others shifted location within Pakistan [27]. Although >60,000 persons returned spontaneously to Afghanistan in November and December, and 30,000 internally displaced returned to Kabul [28], it is not clear whether substantial returns will occur and populations will remain stable over the longer term.

Relief efforts to date. Afghanistan has been highly de-

pendent on international assistance for many years. A wide range of governmental and nongovernmental organizations (NGOs) have been operating there for decades [29]. United Nations–based organizations such as the World Food Program and the United Nations Children’s Fund (UNICEF), international organizations such as the International Committee of the Red Cross, national organizations such as the US Agency for International Development, NGOs such as Médecins sans Frontières and the International Rescue Committee, and hundreds of other groups have been providing emergency assistance and development programs in health, food relief, and education, among other areas.

Relief and development agencies have provided a significant proportion of the food and almost all of the health care in Afghanistan. About 70% of the health care system is dependent on external aid [30]. Many relief groups can boast of major accomplishments in extraordinarily difficult circumstances. By means of negotiations between warring factions and relief agencies in 1994, special cease-fires (“days of tranquility”) and conflict-free regions (“zones of peace”) allowed for the basic immunization of children to resume for 1 week. The next year, a health cease-fire lasted for 2 months [22] and allowed for the surveillance of measles, polio, and neonatal tetanus in a number of locations. Through these accomplishments, polio eradication efforts progressed further in Afghanistan than in any other country affected by armed conflict. Unfortunately, despite these successes, coverage of neonates against tetanus has not exceeded 30% [31].

For a number of reasons, it has always been extremely difficult for relief agencies to work in Afghanistan. In addition to logistic, financial, and other challenges under the Taliban, conditions could be particularly severe. For example, a number of relief groups with religious affiliations, such as the International Assistance Mission and Serve, both of which provide eye care and other assistance to the >400,000 blind Afghans, were expelled by the Taliban for promoting Christianity [32]. In one location, the Taliban forbade the use of any computers or electronic communications, thereby severely disrupting essential food deliveries [33].

After 11 September, and with the threat of coalition attacks against the Taliban and al-Qaeda, >100 aid agencies working in health, food, water, sanitation, and other projects were forced to withdraw all foreign staff. Médecins sans Frontières, for example, who have been in the country since 1979, withdrew expatriate staff from all but 3 locations, and the International Rescue Committee withdrew all but their national staff [34].

To some extent, relief agencies were able to continue operating through local indigenous staff. This helped to allow relief efforts to rapidly reorganize and resume once security improved. In anticipation of a wider and coordinated response to come, the UN Office of the Coordinator for Humanitarian

and Economic Assistance programs in Afghanistan developed a 30-day Operational Emergency Assistance Plan to coordinate organizations operating throughout the country, develop measures for accountability and performance, and devise a mechanism for identifying populations in inaccessible areas [35]. Early on, World Health Organization (WHO) sponsored a major conference to assess and plan health needs and are implementing a 30-day operational plan focusing primarily on medical supplies, medical staff, and a cold chain for measles immunization [36]. World Food Program and UNICEF, as well as other major relief agencies and NGOs, focused efforts on planning for an expanded aid recovery.

It has been possible to gain access to Afghanistan, although intermittently, through Tajikistan, Uzbekistan, and Iran. Supply hubs in Peshawar, Quetta, Mashhad, Turkmenabad, Termez, and Dushanbe are critical in the long term for shipping food and emergency supplies and coordinating information and logistic support across the border. World Food Program was slowed to a delivery of 200 metric tons of food per day during the height of the most recent conflict but resumed operations with the strategy of finding functioning corridors and bypassing urban areas to move food directly to areas of need. They subsequently delivered 114,000 metric tons of wheat in December, which they said constituted the largest and most complicated food aid program ever carried out by World Food Program in its 40 years of existence [37]. UNICEF quickly resumed delivery of winter clothing, blankets, medical supplies, and generators to conflict-ridden Mazar-i-Sharif in October, and Médecins sans Frontières was able to supply hospitals and food depots in the western city of Herat [29]. Stockpiled supplies in Uzbekistan remained poised to deliver food as soon as vital rail, truck, barge, and highway links could be reopened and secured. As of mid-November, the US military had dropped ~1.5 million humanitarian daily rations to remote areas, valued at over US\$6,000,000, and a US Agency for International Development–funded project completed work to build 4200 emergency shelter units in Herat [37]. These represent only a few of the early humanitarian efforts to aid Afghanistan.

Both short- and long-term needs, however, are overwhelming, and resources are very limited. There are also concerns about whether humanitarian action can be sustained. In July 2001, well before this latest crisis, the UN Consolidated Appeal, a joint aid operation run by UN agencies and NGOs, had received <40% of the funds needed to provide basic health care [21]. At present, despite their best efforts, the UN agencies, including the Office of the Coordinator for Humanitarian and Economic Assistance, report a lack of critical resources for coordination of relief and protection, and NGOs are constrained by limited resources as well. Although the WHO and UNICEF shipped emergency medical supplies to >7 million persons reported to be in remote areas with poor or no health services,

this accounted for only 28% of the needs, leaving many areas, especially those with large settlements of IDPs in the north and west, in peril [36]. In Herat, for example, as of this writing, only 5 clinics are serving the entire health needs of 300,000 people. An estimated 3.8 million Afghans are dependent on food aid, and 5.3 million are considered highly vulnerable [17]. The UN Development Programme estimates that overall, Afghanistan needs ~US\$40 per person per year and US\$10–\$20 billion over the next 10 years just to meet basic needs and carry out essential infrastructure development [6].

In addition, the security concerns for humanitarian workers has escalated, with reports of considerable looting, lawlessness, and violence. A consequence of the fall of the Taliban is less security. Armed gunmen have hijacked cars, trucks, and ambulances, looted convoys, and ransacked a number of relief organization food warehouses, all of which could severely marginalize access and availability to optimal relief and health services [29, 32, 34].

THE CURRENT HEALTH SITUATION

Overall health information. Health care providers and their health and public health programs should rely on sound assessment and surveillance and data analysis. The foundation for health planning and decision making is baseline epidemiological data. In the Congo, cluster analyses were done under adverse conditions and used to generate estimates of excess deaths following 2.5 years of civil war. Data gleaned from this study suggested that up to 2.5 million excess deaths occurred but that only 11% had resulted from the direct trauma of war. The remainder occurred from diarrheal diseases, malnutrition, and malaria—preventable deaths resulting from the loss of basic health care and public health infrastructure and the protections they provide [38, 39]. This type of information is critical both for planning current relief and development efforts and for prevention of excess mortality in other crises. Essentially, minimal reliable and timely data are available for Afghanistan, especially from the western and northern provinces. Although WHO has attempted to assist in the development of a health information system in certain areas, it is not yet producing accurate or timely information.

The data that do exist strongly suggest that most of the health issues common to complex emergencies of the past decade are the most immediate threats. This provides a stepping-off point for general planning, but when more complete and reliable data are generated, course corrections will be needed. WHO predicted that during winter, the main causes of excess mortality would be acute respiratory infections, diarrheal diseases, and maternal complications during pregnancy and birth. The main risk factors were expected to be poor nutritional status, exposure, crowding, depletion of family resources, and lack of

basic health care [40]. A wide variety of other significant health problems remain unattended, including malaria, physical trauma, psychological trauma, disrupted maternal-child health services, absence of reproductive health services, tuberculosis, leishmaniasis, and various chronic diseases.

Acute respiratory infections. Specific data are lacking, but acute respiratory infections due to common viral and bacterial pathogens are widely reported and are a very serious threat to much of the population [40, 41]. Pneumonia is a leading cause of death in children and can be fatal in as many as 20% of cases if not managed properly. Camps for the internally displaced have reported acute respiratory infections in up to 50% of those screened. Lack of food and shelter are important cofactors. The incidence of acute respiratory infections, including pneumonia, is typically higher during the winter months and in areas that experience bitter cold, such as the northern mountain regions and the desert plains.

Diarrheal diseases. Very few data exist on the incidence or specific etiologies of diarrheal disease, even though it is also widely reported as a major cause of morbidity and mortality [40, 41]. An estimated 85,000 Afghan children die each year from diarrheal disease [42]. In previous conflict situations, diarrhea has accounted for 25%–40% of all deaths and as much as 80% of deaths among children <2 years old. Common pathogens include viruses such as rotavirus and enteric bacteria such as *Escherichia coli* and *Shigella* species. Outbreaks of cholera have occurred throughout Afghanistan for the past 5 years. In June 2001, for example, 4500 cases and 114 deaths were reported from Samangan and Baghland provinces. Although the risk of cholera generally declines in the winter months, the risk may remain very high in camps for refugees and IDPs. Poor sanitation, lack of access to water, contaminated water supplies in camps, and areas with limited health resources create a formula that results in high morbidity and mortality from diarrheal disease.

Measles. Measles has been a leading cause of morbidity in those <5 years old in complex emergencies. More than one-third of the country has had no routine immunization programs, and immunization coverage rates are estimated to be well below 50% among most children [5, 41, 42]. A number of outbreaks have been reported from numerous locations in the country [43]. Measles accounts for up to 35,000 deaths among children each year in Afghanistan. More inaccessible areas such as Hazarajat and Nuristan have been particularly affected. In a recent survey, in the remote Kohistan district of the Faryab province, measles was responsible for 15.7% of all deaths [44]. Recent epidemics have occurred, particularly in war-affected areas and where health services were destroyed. Measles is easily spread in overcrowded conditions. Complications of measles, such as pneumonia and meningoencepha-

litis, are especially likely in malnourished children and particularly those with vitamin A deficiency.

Malaria. Malaria is endemic in the country below 1500 m of elevation, including urban areas, but particularly in the rice-growing regions of the north and east of the country [40, 41]. Most malaria in Afghanistan (90%) has been due to *Plasmodium vivax*, but the incidence of *Plasmodium falciparum* malaria, which predominates from September to November, rose by >20% between 1998 and 1999, with an estimated 300,000–450,000 cases of *P. falciparum* malaria per year [45, 46]. In 1995, in 6 eastern provinces, >67,000 microscopically confirmed cases occurred, with an overall slide positivity rate of 19%. Chloroquine resistance appears to be spreading rapidly in Afghanistan [45, 46]. In a survey conducted in 3 eastern provinces, two-thirds of *P. falciparum* infections demonstrated resistance. Although level RI resistance was most common, RII/RIII resistance was significant. This mirrors the situation in neighboring Pakistan. It is suggested that the increased gametocytogenesis in *P. falciparum* infections caused by chloroquine treatment, plus anemia, delays in seeking treatment, and presentations with recrudescing infections, may accelerate the spread of resistance [46]. In 1 study, the use of chloroquine was estimated to accelerate the incidence of resistance by 15% per year [46].

The forced migration of Afghans has had a major influence on the incidence of malaria and the geography of the disease [47]. Over the course of the past 2 decades, the spatial pattern of malaria shifted significantly, with the regions of highest incidence changing to the west and north, coinciding with refugee concentrations. This pattern is a notable example of how population migration and the establishment of refugee camps can change the ecology of a disease [48]. Other critical mechanisms in the spread of malaria in Afghanistan are disruption of health care, damage to irrigation systems, proliferation of vectors, malnutrition, and destruction of vegetation around camps.

Undernutrition. As with other health indicators, sound data on nutritional status are limited. Various surveys have demonstrated rates of acute malnutrition of <10%, but as many as 52% of children have moderate to severe stunting and 25% exhibit wasting [5, 6, 18, 44, 49]. Most data are from accessible areas, and the prevalence of undernutrition is expected to be higher in areas of poor security. In the Faryab province, where indicators of food shortage occurred well before the war on terrorism began, >60% of children were stunted as determined by anthropomorphic measures, even though only 7% demonstrated wasting [49]. Although in this survey the prevalence of severe wasting was not high, higher levels of wasting are usually a late indicator of serious food shortage and famine.

The severity and chronic nature of the food shortages are demonstrated by outbreaks of scurvy in western Afghanistan.

Vitamin C deficiency was responsible for up to 6.5% of all deaths in that area [34, 44]. Cases of liver failure have been seen when scarce supplies of wheat are mixed with seeds of a local weed that contain a toxic alkaloid. Consumption of milk from goats that eat the weed may also be an important factor. An attack rate of up to 25% can occur, and this unusual illness may be mistaken for kwashiorkor [34].

Physical trauma. In addition to communicable diseases, traumatic injuries are an important concern. In 1994, the most common causes of death (33%–43%) in Kabul were war-related weapons injuries, land mine injuries, and unexploded ordnance. These injuries occurred primarily to young adults, a resource vital to any future social and economic recovery. Injuries and permanent disabilities from amputations, burns, and vision or hearing loss remain high throughout the country [49]. Among Afghan women surveyed in 1996, 16% reported that land mines killed ≥ 1 family member, and 23% reported land mine injuries to family members [13]. Even after cessation of conflict, the omnipresence of weapons and the legacy of violence are likely to result in further injuries. In 1996, after a 6-month period of peace in Nangarhar, 51% of hospital admissions occurred from non-combat weapons-related injuries [50].

Psychological trauma. Given the deplorable conditions in Afghanistan, psychological trauma is also a major issue. Although few firm data exist, a 1996 survey of Afghan women in Kabul showed a markedly elevated prevalence of posttraumatic stress disorder, depression, and anxiety [13]. Eighty-four percent of women reported ≥ 1 family member killed in war. All but 1 of the participants had been displaced from Kabul at least once. More than 80% of all respondents were displaced ≥ 1 time within Kabul between 1992 and September 1996. The most commonly cited hardships during displacement included poverty (69%), disease (68%), emotional difficulties (63%), lack of access to health care services (54%), lack of access to education (51%), and inadequate sanitation (50%).

Human rights abuses. In the last decade, the sanctity of national sovereignty, protected under the UN Charter, severely limited the ability of international organizations to intervene in nation states on behalf of populations in need. The “sovereignty versus human rights” debate provoked many humanitarian and human rights organizations to challenge the inviolability claims of many rogue governments. This led to decisions in the late 1990s requiring that UN Security Council interventions be human rights-based, with the ultimate duty to provide assistance. Currently, the right to health as a basic human right serves to guide intervention programs and projects implemented by relief agencies. Such thinking has opened the door for Physicians for Human Rights and other human rights and advocacy organizations to become increasingly active in

documenting and monitoring human rights abuses, providing protection services for the most vulnerable, and advocating for the prosecution of those responsible for the abuses. Tremendous advances have occurred with these organizations in the quality of reporting, documenting, and monitoring violations of human rights and international humanitarian law. They play a pivotal role in the education, training, and field applications of human rights protection. Furthermore, advocacy organizations assist in the understanding of how human rights violations affect health and other basic services. For example, reports from Afghanistan from Physicians for Human Rights underscore that experiences such as witnessing executions, fleeing religious police who are searching for women and girls diverging from dress codes or other edicts, and witnessing family members being jailed or beaten serve to traumatize and retraumatize the people of Afghanistan, many of whom have already experienced the horrors of war, rocketing, ever-present land mines and unexploded ordnance, and the loss of friends and immediate family [12].

Other health issues. Many seemingly less urgent but critical health issues abound in complex emergencies. Often health providers first become aware of their prevalence only when they surface in data collection and analysis during the late emergency phase. For Afghanistan, these include cutaneous leishmaniasis [51, 52] and tuberculosis [40, 41]. Anthroponotic (disfiguring) cutaneous leishmaniasis is a significant public health problem because of the resulting disfigurement and disability it causes. About 5% of the population of Kabul was found to be affected in 1999. Control of the sandfly vector is difficult but essential to the disease's control, particularly in wartime conditions.

Tuberculosis has been estimated to be responsible for 70,000–80,000 new infections and 16,000 deaths per year, often affecting the economically most productive age group. In 1997, only 30 clinics in the country provided tuberculosis treatment services, and most of these were in large cities. Even in these locations, supplies were erratic and management of cases poor. As many as 70% of patients with active tuberculosis have no access to directly observed therapy [53]. As with other conditions, women in Afghanistan are affected the most. The WHO reports that there are no female tuberculosis specialists, yet 70% of tuberculosis is among women. Because effective treatment requires multiple drugs for at least 6 months, effective management of this disease is almost impossible at this time. A coalition of >120 aid organizations has agreed to a plan of action to control tuberculosis in both Afghanistan and neighboring Pakistan. The plan relies on directly observed therapies, the development of new drugs and drug regimens, measures for the prevention of multidrug-resistant tuberculosis, and improved treatment strategies for those with tuberculosis and HIV.

WHAT TO DO—CHALLENGES AND OPPORTUNITIES AHEAD

Most immediate priorities. The situation in Afghanistan is clearly a dire humanitarian emergency. Among the most urgent tasks needed to reduce excess mortality and morbidity in the short term is to provide the security necessary so that basic public health and curative interventions can return. Emergency relief efforts should be based on sound assessments of needs and priorities in conjunction with targeted surveys, surveillance, outbreak investigations, and other information-gathering measures that serve to assess the situation, establish priorities, and monitor progress. Other critical issues are the need to closely coordinate the many different relief groups operating in Afghanistan and to identify vulnerable groups who need targeted interventions.

Certain aspects of reproductive health must be addressed in the emergency phase in an urgent effort to reduce mortality and morbidity, particularly among women. The UNHCR's Minimum Initial Service Package (MISP) describes how these can be implemented without new needs assessments, because these protocols are evidence-based. Minimum Initial Service Package activities include immediate measures to identify implementing organizations and individuals; measures to prevent and manage sexual violence, HIV transmission, and excess neonatal and maternal morbidity and mortality; and the planning necessary for the integration of reproductive health services into primary health care services [54]. Efforts to understand and effectively deal with traumatic injury may also be important in the emergency phase [55].

These basic measures are not unlike what has been needed in many other humanitarian crises of the past decade. Basic priority interventions (water, sanitation, nutrition, food aid, shelter, site planning, and medical services) and strategies for accomplishing them are well known and straightforward [56–58]. However, providing emergency relief and the desired recovery and rehabilitation is usually far more difficult in practice. Although we are better informed, many barriers remain to effective implementation [59], and evidence is still lacking for the effectiveness of many interventions [60]. Also, because public health practice in complex emergencies has grown increasingly more sophisticated in the last decade, it is now seen as inextricably linked to difficult problems such as security, human rights, the media, interaction with military forces, and others [61]. As with other complex humanitarian emergencies of the 1990s, Afghanistan will present its own particular barriers to recovery.

After the emergency phase of the crisis, as crude mortality rates begin to decrease, health priorities should shift to instituting development programs in health and education, starting comprehensive immunization programs, implementing mater-

nal-child and reproductive health programs, dealing with psychological issues, and restoring livelihoods, to name but a few.

Security. Unfortunately, a hard-learned lesson of the 1990s was that adequate security is a prerequisite to any effective relief and development. Security is a basic right and is necessary for relief to proceed effectively, to protect relief workers, and to protect the population. As of this writing, armed violence is still a major concern. In the aftermath of the fall of the Taliban, many areas are still in a state of lawlessness, with armed groups of bandits operating freely. UN peacekeeping efforts and the compliance of disparate ethnic tribes to the interim government will be critical to any aid process. Currently, only 4500 international peacekeepers, primarily confined to Kabul, are being deployed.

As noted in regard to relief efforts in the former Yugoslavia, the primary public health strategy may be stopping the violence [62]. The need to create a "humanitarian space" or a secure and accessible location where humanitarian organizations can provide services to an emergency-affected population is an immediate priority [44]. Both indigenous and foreign aid workers can be in positions of significant risk. Between 1985 and 1998, 382 humanitarian aid workers worldwide were killed, 68% by intentional violence [63]. Relief workers face a variety of other risks in these extreme circumstances as well [64, 65].

A particularly complex issue is the role of external military forces in humanitarian relief. Military forces may be essential in providing security and will likely be relied on for logistic support and some humanitarian relief services. However, some have questioned whether the military has the technical expertise and experience to undertake direct relief [66, 67]. In Afghanistan, the US military's air drops of food were denounced by some for being inefficient and potentially dangerous. The air-dropped food often does not reach the most affected or neediest population, and some Afghans have ventured into land mine-infested areas to recover food packages. The potential involvement of coalition militaries and peacekeeping forces in the humanitarian effort may have important consequences for the international relief efforts [66–69]. Military involvement in humanitarian relief has the potential of blurring the distinction between combatants and neutral relief agencies. The international NGOs may therefore be erroneously associated with the coalition militaries and, by extension, the war effort. This could increase the likelihood of NGOs becoming targets of militias and other belligerents.

Need for information. It is critical to base both emergency relief measures and long-term development priorities and strategies on careful ongoing assessments. The need for effective health information systems is well described [55–59], and a number of relief organizations are already attempting to do this [6, 35, 36]. It is important to involve Afghans directly in the process. In November 2001, UNICEF sponsored sessions for

Afghan health professionals on the future of the health sector and, in particular, requirements for the rehabilitation and reconstruction of the health system at national and community levels [70]. The participants noted that action must be taken at a number of levels but found most important a rapid situation analysis of population health profiles and health care system status. Also, they argued for a review of the previous 1994 minimum primary health care report, with particular attention to correct the imbalance of resource allocation between urban and rural areas and to minimize the gender gap. Further, the roles of all stakeholders must be defined, and the status of IDPs and refugees and their repatriation and return requirements must be assessed.

Critical preventive measures. Planning during the emergency phase to implement preventive programs as soon as possible in the postemergency period ranks high among the lessons learned in previous complex emergencies. However, certain preventive measures have been shown to be exceptionally important and must be implemented in the emergency phase of a humanitarian crisis. Measles is likely to be a major cause of mortality in this setting of low immunization coverage and poor nutritional status, particularly vitamin A depletion. Measles immunization and vitamin A distribution campaigns are urgent priorities in this crisis. UNICEF and WHO have staff working countrywide focusing on the 9 million children aged 6 months to 5 years. These programs require a cold chain until the vaccine is used, which is a formidable logistic obstacle. Other basic childhood immunization programs, including polio vaccine, will resume once the emergency phase of this crisis is over.

Other preventive aspects of disease control programs that focus on environmental issues, such as providing potable water, improving sanitation, and reducing crowding, are also essential. Most of the major causes of morbidity and mortality are, in theory, fully preventable. Some measures, such as distributing soap, are easy, cheap, and effective. Simple methods of protecting water supplies, purifying water, and providing basic sanitation should be implemented as soon as possible.

Environmental controls can be resource-intensive and time-consuming, as illustrated by malaria control efforts in Afghan camps in Pakistan that investigated the effectiveness of distributing bed nets compared with insecticide spraying programs and personal protective measures [71, 72]. Reports show that sometimes there are not simple solutions to disease control. Designing the most effective malaria control programs requires understanding the local vector, economics, and social and cultural practices. In addition to communicable disease control, trauma-oriented prevention and education programs, such as land mine awareness efforts, as shown in previous complex emergencies, will also be critical to success in abating the morbidity and mortality of postconflict trauma.

Critical health services. Community-based primary care services are desperately needed. In principle, there are 4 levels of health facilities in Afghanistan: the regional or specialist hospital; the basic health center, with a small inpatient department; the basic health unit or subcenter; and the health post. Currently, most health posts are not operational, and many of the basic health units are now functioning as maternal and child health clinics. The maternal and child health clinics provide health care only to women and children, a service that is urgently needed, but adolescent and adult males must currently seek care at regional hospitals or through private clinics. The establishment in each district of a functioning basic health center that maintains essential drugs and supplies and uses proven treatment protocols for common conditions is a major priority. Of the 339 districts in Afghanistan, only ~220 currently have a basic health center, and many of these are barely functioning. Many of the health facilities throughout Afghanistan are currently operated by international NGOs. This is especially the case in the main urban centers, but in the rural areas, many people have little or no access to basic primary health care. Without the input of the international NGOs, access to basic health services would largely collapse in many areas.

In most areas, the services provided by the basic health units and maternal and child health clinics are quite poor. In addition, there are many private clinics, but they are usually operated by relatively untrained persons who claim to be qualified physicians. Many thousands of persons who received some form of paramedical training by NGOs in Pakistan have returned to Afghanistan to establish private clinics, but their skills are often questionable. Another challenge is the relative lack of female health professionals throughout the country. Female medical students were forbidden to complete their studies in the mid-1990s. Those students who were already enrolled in medical school in 1996 have only very recently been able to return to their universities, but there will be few new female students to commence their medical studies, because the Taliban forbade female education beyond the 10th grade. This is potentially a serious problem, because under the Taliban, women were supposed to seek treatment from a female doctor, especially for obstetrical and gynecologic conditions. Because many women remain reluctant to seek medical care from male health professionals, the lack of female health staff will continue to act as an obstacle to their access to medical care.

Schools for mid-level female health professionals, including nurses, have recently opened in several cities, but the female nursing school in Kabul has still not yet reopened. UNICEF suggests that it will take >10 years to replenish the supply of nurses.

Long-term approaches. The challenges of rebuilding a health care system show that although it is important to focus at present on short-term emergency measures, these must be

seen as only the first steps in a long, expensive, and complex process. There is a mandate not only to provide emergency relief but also to develop initiatives that will allow the population of Afghanistan to lay the foundations for longer-term recovery, rehabilitation, and development. Whereas many donors are willing to provide funds for emergency measures, particularly as the current crisis is in the headlines, longer-term development can be less appealing.

However, after the current emergency is stabilized, focus must turn to the rehabilitation of health systems and to sustainable development in a variety of related areas, such as education and the economy. Some of the relevant long-term issues include building community-based programs in health care, reconstructing water supplies, developing sanitation, resuming female education, de-mining, starting rural assistance efforts, resuming agriculture and restoring the food economy, developing initiatives in microcredit and apprenticeship, and resuming education. Rehabilitation and longer-term development will require a major commitment of resources, including political will, money, and skilled personnel. As the war on terrorism diminishes, the extent to which the United States and other developed nations will remain committed to rebuilding Afghanistan remains to be seen.

Clearly, many more health workers are needed, both expatriate and indigenous, and given the dangers of Afghanistan, many volunteers may be unwilling to work there. Although personnel are needed, the selection, training, and support of expatriate relief workers must be done carefully. Not only do situations such as Afghanistan require health workers to have technical skills that many practicing in the Western world may not possess [59], but also the psychological stresses can be quite substantial. Stress-related illness in relief workers may be an unrecognized but serious issue [65, 73]. Selection and training of relief workers should be improved, and preventive mental health for relief workers needs attention. Indigenous aid workers in Afghanistan have faced daunting challenges, with many of them imprisoned, beaten, and tortured. Informal surveys indicate that these workers have experienced profound mental health and psychosocial consequences, including flashbacks, intrusive thoughts, anger, fear, and depression. For indigenous staff, Islamic models for counseling, such as "focusing," should be encouraged and developed [65]. Many psychological counseling techniques used in the United States would not be acceptable in Islamic culture. Focusing is a method of counseling closely linked to Sufi Islamic tradition that allows highly personal discussion of psychological issues without breaching ethical dilemmas of trust or disclosure.

Vulnerable populations. Emergency relief and development efforts should focus primarily on the most vulnerable populations, typically refugees and IDPs, women, children, the elderly, single women as heads of households, and unaccom-

panied minors. Relief efforts cannot, on the other hand, ignore the needs of the non-displaced population [49], such as adults [74]. In a survey done in Kabul in 1994, mortality rates were comparable for the non-displaced. This survey suggested that at that time, those with the highest vulnerability may have been those living in 1- or 2-family dwellings, not those in camps for the displaced. However, current reports suggest that IDP camps hastily built to house the migration caused from fear of bombings resulted in large camps (for >250,000) with deplorable or no public health infrastructure.

As the world focuses on Afghanistan, the needs of the large refugee populations that may remain in Pakistan and Iran, countries that are coping with large numbers of refugees at a time when they must take care of their own populations, cannot be ignored. Many Afghan refugees have been outside Afghanistan for >20 years, having originally fled after the Soviet invasion in the late 1980s. Many of these refugees are ethnic Pashtun, the dominant tribe of the Taliban. In recent years, the main disincentive to their return has not been insecurity but rather the poor social and economic conditions in Afghanistan, especially with respect to health services, education, and employment opportunities. Restoration of these basics, with a recovery focus on sustaining livelihood, must occur before the millions of refugees in Pakistan and Iran will return. Such advances, which can only be dreamed of now, will be the magnets to attract emigrated and educated Afghans who have settled in developed countries.

Additional issues. The population of Afghanistan is severely traumatized psychologically. Rehabilitation services to treat the enormous psychological burden and deal with children who have been raised by a legacy of extreme deprivation and violence are urgently needed. Programs to deal with the thousands who have been maimed by land mines will also be critical. Without prostheses and rehabilitation, both physical and psychological, these persons cannot be functional and contributing members of society [7, 8].

Complex ethical and cultural issues are likely to be encountered on many levels. As an example, an expatriate surgeon was asked to amputate a hand in accordance with shari'ah, Islamic law [75]. The dilemma for the surgeon was whether performing the procedure supported a process of cruel and degrading treatment or treated a patient in need of urgent surgical care. His investigation and that of his sponsoring body, the International Committee of the Red Cross, found that international law and medical ethics were not clear. The International Committee of the Red Cross ultimately concluded that they could not support this practice. However, at the same time, they could not be seen as promoting Western values or as antagonistic to Islamic law. This extreme case is exemplary of the difficult issues expatriates could face in Afghanistan. Expatriate relief workers will recognize that the Afghan Ministry of Health does not have

the resources to address the major health needs of the Afghan population.

CONCLUSIONS

It is difficult to quantify the human impact of the last 20 years on the population of Afghanistan. More than 5 million civilians, mostly women and children, are struggling to survive after enduring gross deprivations, insecurity, and severe physical and psychological trauma. It is difficult to imagine a more difficult environment in which to provide emergency humanitarian assistance. As yet, there is a tenuous, fledgling government. The country is split by deep divisions, and much power remains in the hands of warlords. Violence is a way of life; there are an untold number of weapons and land mines. Millions remain displaced from their homes, and much of the population is in remote areas. There is little basic infrastructure (phones, electricity, or mail). Most of the children are unvaccinated, and there is minimal health care. For the most part, the population is largely illiterate and uneducated, and few professionals remain.

Despite these overwhelming obstacles and challenges, there are opportunities to save perhaps hundreds of thousands of lives by implementing appropriate emergency relief and development efforts. Expatriate health care providers can take on many potential roles. Physicians can volunteer, give money, assume relief management roles, or be politically active. One strategy for those interested in rebuilding the health care system is to develop a direct twinning relationship between a US institution and an institution in Afghanistan, although it is important, when external assistance focuses on the development of more sophisticated medical care services, to be sure that these are closely integrated with primary care initiatives [23].

Medicine and public health have important roles to play in securing both short- and long-term peace and stability, and health workers can make important contributions to the overall peace process. A new discipline is emerging of using health initiatives, such as immunization programs and health development, to mitigate conflict and contribute to successful longer-term development [76–78]. What has been designated “peace through health” suggests that health work in zones of conflict can initiate and spread peace through conflict management, solidarity with indigenous health care workers, strengthening of the social fabric, public dissent, and restriction of the destructiveness of war. However, there is only preliminary evidence to date that peace-through-health initiatives are effective.

This may have considerable relevance to the overall war against terrorism. Terrorism is a consequence of wider political and social change and, often, state failure. Finding terrorists and eliminating them may be a necessary first step, but in the

long run, creating a society that does not breed terrorists must be the solution. If health, development, and human rights were long-term foreign policy goals, this focus could play an important role in fighting the war against terrorism. There is a critical opportunity to offer the people of Afghanistan the security, medical care, schools, and other essentials of society that are so desperately needed. Attacking hunger, disease, poverty, insecurity, and illiteracy will greatly improve global security. As the war on terrorism progresses, health should not be an undervalued resource.

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